



SEQUENCE LISTING

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<120> MODULATORS OF BODY WEIGHT, CORRESPONDING
NUCLEIC ACIDS AND PROTEINS, AND DIAGNOSTIC AND THERAPEUTIC
USES THEREOF

<130> 600-1-087/CIPDIVCON

<140> 09/686,647

<141> 2000-10-10

<150> 09/183,374

<151> 1998-10-30

<150> 08/347,563

<151> 1994-11-30

<150> 08/292,345

<151> 1994-08-17

<160> 42

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 2793

<212> DNA

<213> murine

<400> 1

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tgcctatcca gaaagtccag gatgacacca aaaccctcat caagaccatt gtcaccagga 180
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atgttagccc tgaatgctga agtttcaaag gccaccaggc tccaagaat catgtagagg 600
gaagaaacct tggcttccag gggctctcag gagaagagag ccatgtgcac acatccatca 660
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acacagctgg aaactcccaa gcagcacacg atggaagcac ttattttattt attctgcatt 1020
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gagttggagg tagatttttg aggatctgag ggc 2793

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<210> 2
<211> 167
<212> PRT
<213> murine

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<400> 2
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
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Ser Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
20          25          30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
35          40          45
Gln Ser Val Ser Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro
50          55          60
Gly Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
65          70          75          80
Val Tyr Gln Gln Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln
85          90          95
Ile Ala Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala
100         105         110
Phe Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro
115         120         125
Glu Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val
130         135         140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln
145         150         155         160

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Leu Asp Val Ser Pro Glu Cys
165

<210> 3
<211> 700
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 1, 2, 3, 5, 6, 29, 30, 31, 581
<223> n = A,T,C or G

<221> misc_feature
<222> (0)...(0)

<400> 3
nnngnnngttg caaggcccaa gaagcccann ntcctgggaa ggaaaatgca ttggggaacc 60
ctgtgcggat tcttgtggct ttggccctat cttttctatg tccaagctgt gcccatccaa 120
aaagtccaag atgacaccaa aaccctcatc aagacaattg tcaccaggat caatgacatt 180
tcacacacgc agtcagtctc ctccaaacag aaagtcaccg gtttggactt cattcctggg 240
ctccacccca tcctgacctt atccaagatg gaccagacac tggcagtcta ccaacagatc 300
ctcaccagta tgccttccag aaacgtgatc caaatatcca acgacctgga gaacctccgg 360
gatcttcttc acgtgctggc cttctctaag agctgccact tgccctgggc cagtggcctg 420
gagaccttgg acagcctggg ggggtgtcctg gaagcttcag gctactccac agaggtgggtg 480
gccctgagca ggctgcaggg gtctctgcag gacatgctgt ggcagctgga cctcagccct 540
gggtgctgag gccttgaagg tcactcttcc tgcaaggact nacgttaagg gaaggaactc 600
tggtttccag gtatctccag gattgaagag cattgcatgg acaccctta tccaggactc 660
tgtcaatttc cctgactcct ctaagccact cttccaaagg 700

<210> 4
<211> 167
<212> PRT
<213> Homo sapiens

<400> 4
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu
1 5 10 15
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
20 25 30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
35 40 45
Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro
50 55 60
Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala
65 70 75 80
Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln
85 90 95
Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala
100 105 110
Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu
115 120 125
Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val
130 135 140
Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln
145 150 155 160

Leu Asp Leu Ser Pro Gly Cys
165

<210> 5
<211> 166
<212> PRT
<213> Murine

<400> 5
Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
1 5 10 15
Ser Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
20 25 30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
35 40 45
Ser Val Ser Ala Lys Gln Arg Val Thr Gly Leu Asp Phe Ile Pro Gly
50 55 60
Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala Val
65 70 75 80
Tyr Gln Gln Val Leu Thr Ser Leu Pro Ser Gln Asn Val Leu Gln Ile
85 90 95
Ala Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Leu Leu Ala Phe
100 105 110
Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu
115 120 125
Ser Leu Asp Gly Val Leu Glu Ala Ser Leu Tyr Ser Thr Glu Val Val
130 135 140
Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln Leu
145 150 155 160
Asp Val Ser Pro Glu Cys
165

<210> 6
<211> 166
<212> PRT
<213> Homo sapiens

<400> 6
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu
1 5 10 15
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
20 25 30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
35 40 45
Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly
50 55 60
Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val
65 70 75 80
Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln Ile
85 90 95
Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe
100 105 110
Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp
115 120 125
Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val

| | | |
|---|-----|-----|
| 130 | 135 | 140 |
| Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu | | |
| 145 | 150 | 155 |
| Asp Leu Ser Pro Gly Cys | | 160 |
| 165 | | |

<210> 7
 <211> 176
 <212> DNA
 <213> Mus musculus

<220>
 <221> misc_feature
 <222> 61, 66, 89, 151, 164
 <223> n = A,T,C or G

<400> 7
 gtgcaagaag aagaagatcc cagggcagga aaatgtgctg gagaccctg tgtcgggtcc 60
 nggtgntttg gtcctatctg tcttatgtnc aagcagtgcc tatccagaaa gtccaggatg 120
 acaccaaag cctcatcaag accattgtca ncaggatcac tganatttca cacacg 176

<210> 8
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR 5' primer for exon 2G7

<400> 8
 ccagggcagg aaaatgtg 18

<210> 9
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> PCR 3' primer for exon 2G7

<400> 9
 catcctggac tttctggata gg 22

<210> 10
 <211> 23
 <212> PRT
 <213> Murine

<400> 10
 Met Cys Trp Arg Pro Leu Cys Arg Phe Leu Trp Leu Trp Ser Tyr Leu
 1 5 10 15
 Ser Tyr Val Gln Ala Val Pro
 20

<210> 11

<211> 287
<212> DNA
<213> Artificial Sequence

<220>
<223> pET-15b expression vector sequence

<221> misc_feature
<222> 20, 37
<223> T7 promoter

<221> misc_feature
<222> 39, 64
<223> lac operator

<221> CDS
<222> (108)...(243)

<221> misc_feature
<222> 123, 137
<223> His-Tag

<221> misc_feature
<222> 184, 196
<223> Thrombin cleavage site

<400> 11
agatctcgat cccgcgaaat taatacgact cactataggg gaattgtgag cggataacaa 60
ttccctctca caaataattt tgtttaactt taagaaggag atataacc atg ggc agc 116
Met Gly Ser
1

agc cat cat cat cat cat cac agc agc ggc ctg gtg ccg cgc ggc agc 164
Ser His His His His His His Ser Ser Gly Leu Val Pro Arg Gly Ser
5 10 15

cat atg ctc gag gat ccc gct gct aac aaa gcc cga aag gaa gct gag 212
His Met Leu Glu Asp Pro Ala Ala Asn Lys Ala Arg Lys Glu Ala Glu
20 25 30 35

ttg gct gct gcc acc gct gag caa taa cta g cataaccct tggggcctct 263
Leu Ala Ala Ala Thr Ala Glu Gln * Leu
40

aaacgggtct tgaggggttt tttg 287

<210> 12
<211> 43
<212> PRT
<213> Artificial Sequence

<220>
<223> cloning region of pET-15b vector

<400> 12
Met Gly Ser Ser His His His His His His Ser Ser Gly Leu Val Pro
1 5 10 15

Arg Gly Ser His Met Leu Glu Asp Pro Ala Ala Asn Lys Ala Arg Lys
 20 25 30
 Glu Ala Glu Leu Ala Ala Ala Thr Ala Glu Gln
 35 40

<210> 13
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Murine 5' primer

<400> 13
 cttatgttca tatggtgccg atccagaaag tc 32

<210> 14
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Murine 3' primer

<400> 14
 tccctctaca tatgtcttgg gagcctggtg gc 32

<210> 15
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Human 5' primer

<400> 15
 tctatgtcca tatggtgccg atccaaaaag tc 32

<210> 16
 <211> 32
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Human 3' primer

<400> 16
 ttccttccca tatggtactc cttgcaggaa ga 32

<210> 17
 <211> 11
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Splice acceptor site

<400> 17
agcagtcggt a

11

<210> 18
<211> 16
<212> PRT
<213> Murine

<400> 18
Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr
1 5 10 15

<210> 19
<211> 15
<212> PRT
<213> Murine

<400> 19
Leu His Pro Ile Leu Ser Leu Ser Lys Met Asp Gln Thr Leu Ala
1 5 10 15

<210> 20
<211> 19
<212> PRT
<213> Murine

<400> 20
Ser Lys Ser Cys Ser Leu Pro Gln Thr Ser Gly Leu Gln Lys Pro Glu
1 5 10 15
Ser Leu Asp

<210> 21
<211> 20
<212> PRT
<213> Murine

<400> 21
Ser Arg Leu Gln Gly Ser Leu Gln Asp Ile Leu Gln Gln Leu Asp Val
1 5 10 15
Ser Pro Glu Cys
20

<210> 22
<211> 414
<212> DNA
<213> Homo sapiens

<220>
<221> misc_feature
<222> 361, 385, 397
<223> n = A,T,C or G

<221> CDS
<222> (38)...(181)

<221> misc_feature
<222> (182)...(414)
<223> 5' region of first intron

<221> misc_feature
<222> 11, 28
<223> 5' noncoding sequence of the human ob gene from
which the HOB 1gF DNA primer was generated

<221> misc_feature
<222> 241, 260
<223> intronic sequence of the human ob gene from which
the HOB 1gR primer was generated

<400> 22
ggttgcaagg cccaagaagc ccacacctggg aaggaaa atg cat tgg gga acc ctg 55
Met His Trp Gly Thr Leu
1 5

tgc gga ttc ttg tgg ctt tgg ccc tat ctt ttc tat gtc caa gct gtg 103
Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu Phe Tyr Val Gln Ala Val
10 15 20

ccc atc caa aaa gtc caa gat gac acc aaa acc ctc atc aag aca att 151
Pro Ile Gln Lys Val Gln Asp Asp Thr Lys Thr Leu Ile Lys Thr Ile
25 30 35

gtc acc agg atc aat gac att tca cac acg gtaaggagag tatgcgggga 201
Val Thr Arg Ile Asn Asp Ile Ser His Thr
40 45

caaagtagaa ctgcagccag ccacgactg gctcctagtg gcactggacc cagatagtcc 261
aagaaacatt tattgaacgc ctctgaatg ccaggcacct actggaagct gagaaggatt 321
ttggatagca cagggtcca ctctttctgg ttgtttcttn tggccccctc tgctgtctga 381
gatnccaggg gttagnnggtt cttaattcct aaa 414

<210> 23
<211> 48
<212> PRT
<213> Homo sapiens

<400> 23
Met His Trp Gly Thr Leu Cys Gly Phe Leu Trp Leu Trp Pro Tyr Leu
1 5 10 15
Phe Tyr Val Gln Ala Val Pro Ile Gln Lys Val Gln Asp Asp Thr Lys
20 25 30
Thr Leu Ile Lys Thr Ile Val Thr Arg Ile Asn Asp Ile Ser His Thr
35 40 45

<210> 24
<211> 801
<212> DNA

<213> 'Homo sapiens

<220>

<221> misc_feature

<222> 145, 285

<223> n = A,T,C or G

<221> CDS

<222> (291)...(648)

<221> misc_feature

<222> 1, 290

<223> 3' of first intron

<221> misc_feature

<222> 250, 269

<223> intronic sequence of human ob gene HOB from which
the HOB 2gF primer was generated

<221> misc_feature

<222> 707, 728

<223> 3' noncoding sequence of the human ob gene from
which the HOB 2gR DNA primer was generated

<400> 24

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ctggttcttt caggaagagg ccatgtaaga gaaaggaatt gacctaggga aaattggcct 60
gggaagtgga gggaacggat ggtgtgggaa aagcaggaat ctcggagacc agcttagagg 120
cttggcagtc acctgggtgc agganacaag ggcctgagcc aaagtgggtga gggaggggtg 180
aaggagacag cccagagaat gaccctccat gccacggggg aaggcagagg gctctgagag 240
cgattcctcc cacatgctga gcacttggtc tccctcttcc tcctncatag cag tca 296
                                           Gln Ser
                                           1
```

```
gtc tcc tcc aaa cag aaa gtc acc ggt ttg gac ttc att cct ggg ctc 344
Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro Gly Leu
      5              10              15
```

```
cac ccc atc ctg acc tta tcc aag atg gac cag aca ctg gca gtc tac 392
His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala Val Tyr
      20              25              30
```

```
caa cag atc ctc acc agt atg cct tcc aga aac gtg atc caa ata tcc 440
Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln Ile Ser
      35              40              45              50
```

```
aac gac ctg gag aac ctc cgg gat ctt ctt cac gtg ctg gcc ttc tct 488
Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala Phe Ser
      55              60              65
```

```
aag agc tgc cac ttg ccc tgg gcc agt ggc ctg gag acc ttg gac agc 536
Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu Asp Ser
      70              75              80
```

```
ctg ggg ggt gtc ctg gaa gct tca ggc tac tcc aca gag gtg gtg gcc 584
Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val Val Ala
      85              90              95
```

ctg agc agg ctg cag ggg tct ctg cag gac atg ctg tgg cag ctg gac 632
 Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln Leu Asp
 100 105 110

ctc agc cct ggg tgc t gaggccttga aggtcactct tcctgcaagg actacgttaa 688
 Leu Ser Pro Gly Cys
 115

gggaaggaac tctggctttc caggtatctc caggattgaa gagcattgca tggacacccc 748
 ttatccagga ctctgtcaat ttccctgact cctctaagcc actcttccaa agg 801

<210> 25
 <211> 119
 <212> PRT
 <213> Homo sapiens

<400> 25
 Gln Ser Val Ser Ser Lys Gln Lys Val Thr Gly Leu Asp Phe Ile Pro
 1 5 10 15
 Gly Leu His Pro Ile Leu Thr Leu Ser Lys Met Asp Gln Thr Leu Ala
 20 25 30
 Val Tyr Gln Gln Ile Leu Thr Ser Met Pro Ser Arg Asn Val Ile Gln
 35 40 45
 Ile Ser Asn Asp Leu Glu Asn Leu Arg Asp Leu Leu His Val Leu Ala
 50 55 60
 Phe Ser Lys Ser Cys His Leu Pro Trp Ala Ser Gly Leu Glu Thr Leu
 65 70 75 80
 Asp Ser Leu Gly Gly Val Leu Glu Ala Ser Gly Tyr Ser Thr Glu Val
 85 90 95
 Val Ala Leu Ser Arg Leu Gln Gly Ser Leu Gln Asp Met Leu Trp Gln
 100 105 110
 Leu Asp Leu Ser Pro Gly Cys
 115

<210> 26
 <211> 8
 <212> PRT
 <213> Pichia yeast

<400> 26
 Leu Glu Lys Arg Glu Ala Glu Ala
 1 5

<210> 27
 <211> 4
 <212> PRT
 <213> Pichia yeast

<400> 27
 Glu Ala Glu Ala
 1

<210> 28
 <211> 4

<212> PRT
<213> Pichia yeast

<400> 28
Leu Glu Lys Arg
1

<210> 29
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> HOB 1gF DNA primer generated from the 5' noncoding
sequence of the human ob gene

<400> 29
cccaagaagc ccatcctg 18

<210> 30
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> HOB 1gR DNA primer generated from the first
intronic sequence of the human ob gene

<400> 30
gactatctgg gtccagtgcc 20

<210> 31
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> HOB 2gF DNA primer generated from the first
intronic sequence of the human ob gene

<400> 31
ccacatgctg agcacttggt 20

<210> 32
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> HOB 2gR DNA primer generated from the 3' noncoding
sequence of the human ob gene

<400> 32
cttcaatcct ggagatacct gg 22

<210> 33

<210> 38
<211> 4
<212> PRT
<213> Murine

<400> 38
Gly Ser His Met
1

<210> 39
<211> 7
<212> PRT
<213> Murine

<400> 39
Glu Asn Leu Arg Asp Leu Leu
1 5

<210> 40
<211> 21
<212> DNA
<213> Murine

<400> 40
gagaatctcc gagacctcct c

21

<210> 41
<211> 3
<212> PRT
<213> Murine

<400> 41
Glu Asn Leu
1

<210> 42
<211> 21
<212> DNA
<213> Murine

<400> 42
gagaatctct gagacctcct c

21